

WHAT IS CLAIMED IS:

1 1. A prosthesis for placement at an os opening from a main body lumen
2 to a branch body lumen; said prosthesis comprising:
3 a radially expansible scaffold; and
4 at least two circumferential anchors extending axially from an end of the
5 scaffold, said anchors adapted to extend axially into and expandably circumscribe at least
6 one-half of the main vessel wall when the scaffold is implanted in the branch lumen with said
7 one end adjacent the os.

1 2. A prosthesis as in claim 1, comprising at least three circumferential
2 anchors extending axially from the end of the scaffold.

1 3. A prosthesis as in claim 1, wherein the anchors have an axial length
2 which is at least 1.5 times the width of the scaffold prior to radial expansion.

1 4. A prosthesis as in claim 1, wherein the anchors have an axial length of
2 at least 2 mm.

1 5. A prosthesis as in claim 1, wherein the scaffold comprises a plurality
2 of axially adjacent cells.

1 6. A prosthesis as in claim 1, wherein the circumferential anchors are all
2 congruent.

1 7. A prosthesis as in claim 1, wherein the circumferential anchors will
2 radially expand when the scaffold is radially expanded.

1 8. A prosthesis as in claim 1, wherein the circumferential anchors are
2 adapted to both bend and rotate relative to a control axis of the prosthesis.

1 9. A prosthesis as in claim 1, further comprising a radiopaque marker at
2 or near a transition location between the scaffold and the circumferential anchors.

1 10. A prosthesis as in claim 1, mounted on a balloon wherein the balloon
2 has a radiopaque marker aligned with a transition location between the scaffold and the
3 circumferential anchors.

1 11. A method for deploying a prosthesis across an os opening from a main
2 body lumen to a branch body lumen, said method comprising:
3 positioning the prosthesis so that a scaffold lies within the branch body and at
4 least two circumferential anchors extend into the main body lumen;
5 radially expanding the scaffold to implant said scaffold in the branch body
6 lumen; and
7 circumferentially deforming the anchors to circumscribe at least a portion of
8 the main vessel wall and open a passage through the anchors.

1 12. A method as in claim 11, wherein at least three circumferential anchors
2 extend into the main body lumen.

1 13. A method as in claim 11, wherein positioning the prosthesis comprises
2 aligning a visible marker on at least one of the prosthesis and a delivery balloon with the os.

1 14. A method as in claim 11, wherein the lumens are blood vessels.

1 15. A method as in claim 11, wherein the scaffold is expanded with a
2 balloon expanded within the scaffold.

1 16. A method as in claim 15, wherein the anchors are deformed by
2 expanding a balloon positioned transversely through the anchors.

1 17. A method as in claim 16, wherein the scaffold and anchors are
2 expanded and deformed by the same balloon.

1 18. A method as in claim 16, wherein the scaffold and anchors are
2 expanded and deformed by different balloons.

1 19. A method as in claim 11, further comprising deploying a second
2 prosthesis within the passage through the anchors.

1 20. A method as in claim 19, wherein the second prosthesis is deployed by
2 a balloon catheter exchanged over a guidewire pre-positioned for deformation of the anchors.

1 21. A method as in claim 19, wherein the anchors are deformed by
2 deployment of the second prosthesis.

1 22. A method as in claim 19, wherein the deployed second stent supports
2 the anchors over their lengths from the os over the main body lumen wall.